

CLAIMS

What is claimed is:

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1 1. In an imaging system including a system housing and a  
2 printing consumable holding assembly within the system housing, a printing  
3 consumable loading assembly comprising the following:  
4 at least one consumable-containing cartridge;  
5 at least one opening in the system housing having a size and  
6 shape adapted to permit the consumable-containing cartridge to pass  
7 therethrough; and  
8 a guide assembly connected to the imaging system within the  
9 housing and adapted to receive a consumable-containing cartridge as it is  
10 inserted through the opening in the system housing, the guide assembly guiding  
11 the consumable-containing cartridge into an in-use position within the printing  
12 consumable holding assembly.

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1 2. A printing consumable loading assembly according to claim  
2 1, further comprising a control actuator connected to the imaging system and to  
3 the guide assembly.

1 3. A printing consumable loading assembly according to claim  
2 2, wherein the control actuator comprises an ejection mechanism connected to  
3 the imaging system and to the guide assembly, the ejection mechanism being  
4 adapted and constructed to selectively eject a consumable-containing cartridge  
5 from the holding assembly.

1 4. A printing consumable loading assembly according to claim  
2 3, further comprising the following:  
3 a sensor adapted and constructed to sense the quantity of  
4 consumable within the consumable-containing cartridge; and

5 a display located on the system housing, the display being  
6 connected to the sensor to display sensor readings.

1 5. A printing consumable loading assembly according to claim  
2 3, wherein the control actuator comprises the following:

3 a sensor adapted and constructed to sense the quantity of  
4 consumable within the consumable-containing cartridge; and

5 an electronic latch connected to the sensor and to the ejection  
6 mechanism, the electronic latch being adapted and constructed to automatically  
7 actuate the ejection mechanism to eject the consumable-containing cartridge  
8 when the sensor indicates that the quantity of consumable within the  
9 consumable-containing cartridge is at a predetermined level.

1 6. A printing consumable loading assembly according to claim  
2 1, wherein the at least one consumable-containing cartridge comprises a  
3 plurality of consumable-containing cartridges.

1 7. A printing consumable loading assembly according to claim  
2 6, wherein the at least one opening in the system housing comprises a plurality  
3 of openings in the system housing.

1 8. A printing consumable loading assembly according to claim  
2 7, further comprising a registration key mechanism on the openings in the  
3 system housing and the consumable-containing cartridges, the respective  
4 consumable-containing cartridges being configured to fit only into corresponding  
5 openings in the system housing.

1 9. A printing consumable loading assembly according to claim  
2 8, wherein the registration key mechanism comprises the following:

3 a respective fin on each of the consumable-containing cartridges,  
4 the shape and position of the fin indicating a particular aspect of the  
5 consumable within the cartridge; and

6 a respective slot in each of the openings, the slots corresponding  
7 in shape and position to the fins on the respective consumable-containing  
8 cartridges.

1 10. A printing consumable loading assembly according to claim  
2 6, wherein the at least one opening in the system housing comprises a single  
3 opening.

1 11. A printing consumable loading assembly according to claim  
2 10, wherein the holding assembly includes a carousel adapted and constructed  
3 to hold a plurality of consumable-containing cartridges, and the guide assembly  
4 is mounted within the system housing in a position aligned for loading cartridges  
5 into the carousel, the carousel being configured to rotate to a first position to  
6 receive cartridges loaded via the opening and the guide assembly, and a second  
7 position for image forming.

1 12. A printing consumable loading assembly according to claim  
2 1, further comprising a hinged door over the at least one opening in the system  
3 housing.

1 13. In an imaging system including a system housing having an  
2 access door movable between an open position and a closed position, and a  
3 printing consumable holding assembly within the system housing, a printing  
4 consumable loading assembly comprising the following:  
5 a consumable-containing cartridge;  
6 at least one opening in the system housing having a size and  
7 shape adapted to permit the consumable-containing cartridge to pass  
8 therethrough; and  
9 a guide assembly connected to the imaging system within the  
10 housing and adapted to receive and grasp a consumable-containing cartridge as  
11 it is inserted through the opening in the system housing, the cartridge being  
12 configured to be inserted into the opening with the access door of the system in

13 its closed position, and the guide assembly being adapted and constructed to  
14 guide the consumable-containing cartridge into an in-use position within the  
15 printing consumable holding assembly with the access door of the system in its  
16 closed position.

1 14. A printing consumable loading assembly according to claim  
2 13, further comprising a control actuator connected to the imaging system and  
3 to the guide assembly, the control actuator including an ejection mechanism  
4 connected to the imaging system and to the guide assembly, the ejection  
5 mechanism being adapted and constructed to selectively eject a consumable-  
6 containing cartridge from the holding assembly.

1 15. A printing consumable loading assembly according to claim  
2 14, further comprising the following:  
3 a sensor adapted and constructed to sense the quantity of  
4 consumable within the consumable-containing cartridge; and  
5 a display located on the system housing, the display being  
6 connected to the sensor to display sensor readings.

1 16. A printing consumable loading assembly according to claim  
2 13, wherein the at least one consumable-containing cartridge comprises a  
3 plurality of consumable-containing cartridges.

1 17. A printing consumable loading assembly according to claim  
2 16, wherein the at least one opening in the system housing comprises a plurality  
3 of openings in the system housing.

1 18. A printing consumable loading assembly according to claim  
2 17, further comprising a registration key mechanism on the openings in the  
3 system housing and the consumable-containing cartridges, the respective  
4 consumable-containing cartridges being configured to fit only into corresponding  
5 openings in the system housing.

1 19. A printing consumable loading assembly according to claim  
2 13, wherein the holding assembly includes a carousel adapted and constructed  
3 to hold a plurality of consumable-containing cartridges, and the guide assembly  
4 is mounted within the system housing in a position aligned for loading cartridges  
5 into the carousel, the carousel being adapted and constructed to rotate to a first  
6 position to receive cartridges loaded via the opening and the guide assembly,  
7 and a second position for image forming.

1 20. In an imaging system including a system housing having an  
2 access door movable between an open position and a closed position, and a  
3 printing consumable holding assembly within the system housing, a method of  
4 loading printing consumables, the method comprising the following steps:  
5 providing a consumable-containing cartridge;  
6 providing least one opening in the system housing having a size  
7 and shape adapted to permit the consumable-containing cartridge to pass  
8 therethrough;  
9 providing a guide assembly connected to the imaging system  
10 within the housing, the guide assembly being adapted to receive and grasp a  
11 consumable-containing cartridge as it is inserted through the opening in the  
12 system housing;  
13 inserting the cartridge into the opening;  
14 causing the guide assembly to guide the consumable-containing  
15 cartridge into an in-use position within the printing consumable holding  
16 assembly; and  
17 performing all of the above steps with the access door of the  
18 system in its closed position.